The Impact of Ecotourism on Achieving Sustainable Development: The Case of a Group of Islamic Cooperation Countries

Sarra Madi [1] */ Self-Development and Good Governance Laboratory, University 8 mai 1945 Guelma, Algeria, madi.sarra@uni-guelma.dz*
Saida Bourdima */Self-Development and Good Governance Laboratory, University 8 mai 1945 Guelma, Algeria, bourdima.saida@univ-guelma.dz*

Received: 25/04/2021 **Accepted: 11/06/2021** **Published: 30/06/2021**

***Abstract*:**

The study aims to test the relationship between ecotourism and sustainable development, where the tourists number and the tourism revenues were identified as ecotourism variables while the gross domestic product was chosen as a sustainable development variable, and panel data analysis from 1995-2018 was used on a group of ten countries from the Organization of Islamic Cooperation.

The results of the study showed a direct correlation between the tourists number and the gross domestic product, as well as between the tourism revenues and the gross domestic product, and that the random- effects model was best suited for the sample countries of the study.

Keywords: *Sustainable development, ecotourism, environment, panel data.*
Jel Classification Codes : *L53 ; L78 ; M00.*

1. **Corresponding author:** Sarra Madi, **e-mail address: madi.sarra@univ-guelma.dz**

I. Introduction

During the past decades, tourism has witnessed a vast expansion and diversification, making it one of the largest and fastest growing sectors of the global economy. However, it was not for nothing because United Environment pointed out that tourism is one of the most depleting sectors of natural resources, especially energy, water, land, minerals and salts. It is also one of the most productive sectors of solid waste and gases that causes global warming.

Therefore, the importance of preserving the environment has increased, and ecotourism came to make the tourist friendly with the environment that he visits. And it has become one of the most important types of tourism growing since the second half of the last century, as the movement of tourists has increased between different continents supported by the great progress in the transport sector, due to the increasing demand for it and for trips to natural areas.

It has become a percentage of 20% of the total global tourism movement and what is associated with it of spendings according to the World Tourism Organization's estimates. It is expected that the growth of ecotourism out of the total global tourism movement will increase over the next few years because of the spread of the environmental awareness.

What has made it the centre of attention is its realization of the idea of sustainability, preserving the natural resources and not wasting the available resources. Because ecotourism is based on planning for the future of the coming generations that takes into account the combination of achieving tourism benefit and the benefits that accompanies it, the sustainability of resources and its preservation and developing it for the better which makes it a tool for achieving the sustainable development.

I.1 Problem Statement

Many countries around the world are encouraging to visit natural areas, and many international organizations have called for preserving nature and encouraging its sustainability in various ways to reduce pressures facing ecosystems, protect basic resources from consumption, ensure a more stable economic base, and provide additional income that contributes in protecting environmental diversity, and creating job opportunities for the local population. From this, ecotourism has appeared as one of the most important types of tourism, not only for its economic revenue, but also for its political and social revenues, its cultural influence, and human and civilizational interaction. Which showed results in preserving the sustainability of natural resources by limiting excessive consumption of them, reducing the volume of pollution and achieving sustainable development.

The research problem is centered on the following main question:

How does ecotourism contribute to achieving sustainable development?

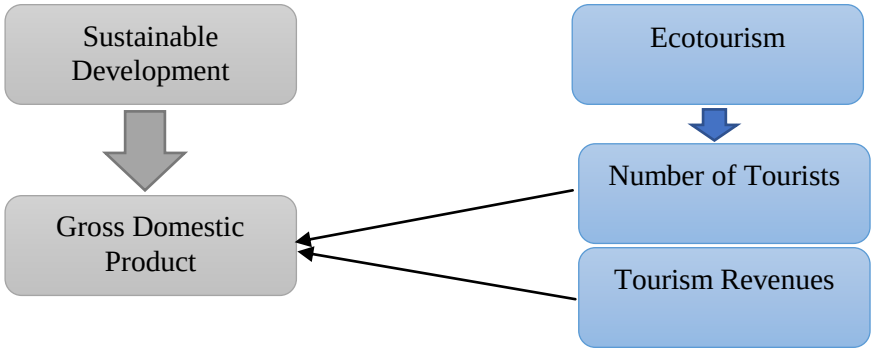
I.2 Hypothesis

There is no statistically significant relationship between the ecotourism indicators and the sustainable development.

From which has derived the following sub-hypotheses:

- H_0: There is no statistically significant relationship between the number of tourists and the gross domestic product.
- H_0: There is no statistically significant relationship between the tourism revenue and the gross domestic product.

I.3 Study Model



Source: Prepared by the researchers

II. Sustainable Development

Sustainability and sustainable development (SD) are terms that can be viewed in numerous ways, but SD must balance social, economic and environmental dimensions, according to the United Nations Development Programme. The various definitions of biodiversity and the ideals of SD reflect different ways of treating humanity's interaction with the environment.(Grano and Prieto, 2020). From local and global viewpoints, the word "sustainable development" forms the cornerstone and ultimate aim of ESD. The notion has been articulated for thousands of years in indigenous cultures and for many decades in scholarly publications, although the concept itself is relatively recent. (Agbedahin, 2019). A major issue today is sustainable development. As a term, sustainable development originated along with the development of industrialization in the 1970s (Sharma, 2015). The word' sustainable development' first emerged as far back as 1987. It was included in the study of the International Commission on Environment and Development, entitled 'Our Shared Future,' at the UN General Assembly conference. It narrowed down to the notion that sustainable development requires ensuring that today's needs are met without the possibility of developing a situation in which future generations' capacity to fulfill their needs is minimized (Kurbatova et all. 2020). It suggests that development must be mindful of nature and of society. It is a mode of economic growth aimed primarily at reconciling social change with the protection of the environment as a legacy to be passed on to future generations. In multiple ways, sustainable development builds value and affects all areas (Mahcine and Cherchem, 2020).

The three key pillars of sustainable development are economic growth, social integration and environmental conservation (Haliscelik and Soytas, 2019). Environmental sustainability refers to the equilibrium of transition systems

between inputs (natural resources) and outputs, such that outputs do not irreparably harm the inputs used, such as non-renewable resources. In the other hand, economic sustainability means using the outcome produced by resources (natural, human and artificial) without losing its capacity to produce new inputs. Finally, the balance between intergenerational and infra-generational equality and regard for human rights are the basis of social development. Sustainable development should be undertaken by funding based on the values just described and which, as such, can be adequately identified as ethical finance (Ferri and Acosta, 2019).

The definition of 'sustainable development' describes the form of economic development that ensures the reproducibility of limited resource and the efficiency of economic growth (Vikhoreva et all. 2020). It contains within it two key concepts (Lut, 2020):

– The idea of needs, in particular the basic needs of the world's poor, which should be given overriding priority;

– The second is limitations. Technology and social organisation mastery should pay attention to the limits of the environment's capacity to satisfy individual needs at present and in the future (Sabrina, 2020).

Partnership is required for sustainable development and is now widely recognized not only by politicians, but also by manufacturers and end users. However, its execution is not straightforward and involves commitment on the part of the stakeholders. One of the big problems is the issue of how to better and more successfully enforce sustainable development assumptions in practice. (Klein and Spychalska-Wojtkiewicz, 2020). To describe the efforts on joint sustainable development, in the manufacturer-supplier examples, such as Apple and its suppliers, we consider a simplied channel where a single manufacturer and a single supplier exist with an emphasis on the costsharing contract in joint sustainable development (Song et all. 2020).

II.1 Measures of Sustainable Development

Some important measures for sustainable development are as following (Verma, 2019):

– **Improving Social, Cultural and Economic Dimensions:** Development does not rely exclusively on one segment of already wealthy individuals. It should instead require the distribution of advantages between the wealthy and the poor. It should also protect the tribal, national, and cultural heritage of the people. There should be good group interest in strategy and implementation. Growth of population should be stabilized.

– **Using Appropriate Technology:** Because the appropriate technology is to invent non polluting technologies and to design technologies that only used renewable resources (Beder, 2000).

- **Reduce, Reuse and Recycle Approach:** The 3Rs are concerned with materials and waste treatment during their entire life cycle, from extraction, conversion and use to disposal (Schandl, 2016).
- **Promoting Environmental Education and Awareness:** The aim is to embed the idea of sustainable development in education systems around the world. This involves the sensitization and engagement of all responsible adults, residents, teachers, students and schoolchildren in political and business communities to ensure that people are conscious of the value of changing their actions and behaviors to facilitate sustainable development (PRO EUROPE, 2005).
- **Resource Utilization as per Carrying Capacity:** Maximum acceptable use of natural resources in order to keep the environment sustainable. It depends on three factors: the amount of resources available in the environment, the population size, and the quantity of resources consumed separately by each item (Voulellis and Serraos, 2017).

III. Ecotourism

Ecotourism is a branch of the tourism sector that represents the ethos of responsible interaction with local cultures and the environment. Ecotourism involves, but is not limited to, nature camping, fishing, exploration of animals, and cultural tourism, typically with some ecological attention, education for ecology, or sustainability. The concept was officially proposed in 1983 by Héctor Ceballos-Lascuráin, a Mexican environmentalist and architect, and the first ecotourism organisation, the International Ecotourism Society (TIES), was established in 1990. Ecotourism has since become one of the world's fastest growing tourism sectors (Mckinney, 2016)**.** The International Ecotourism Society (TIES) defines the ecotourism as: "Responsible travel to natural areas with the purpose of conserving the environment, sustaining the well-being of the local people and educating tourists" (Jensen and Langergaard, 2020). Ecotourism, therefore, is one form of tourism which emphasizes local biodiversity, ecosystems, natural history and landscape, as well as the cultural assets of sites and regions (Lee and Iwasa, 2020). Is one of the preferred mechanisms for conservation and community development in many rural areas (Dorji et all. 2020).

Ecotourism is also based on the practices and operations of community-led tourism that conserve natural ecosystems, thus creating jobs in rural communities for unskilled workforce. Normally, such operations do not need vast capital outlays and investment. Ecotourism is also a perfect industry for encouraging economic development in developed countries with a surplus of natural resources and capital shortages (UNEP, 2013). However, considering the increasing interest

in the growth of ecotourism, investment and funding are important to support the development of tourism (Lee and Fayzullina, 2019).

III.1 The Benefits and Reasons Why Ecotourism Has Been Growing

Among the reasons that help understand why ecotourism has been growing are (Polash and Habeb, 2020):

- Remote ecotourism destinations are easier to visit today thanks to cheap flights and accessible infrastructure;
- Many individuals are not pleased or content with conventional tourist destinations and events, so there is a greater interest in challenging and more educative tourism;
- There is a greater understanding of the need for environmental conservation and the ability to contribute to this cause;
- Travelers wish to be viewed as eco-friendly and different;
- Ecotourism will help protect vulnerable areas in the community and increase awareness of local environmental and social problems;
- It can also provide opportunities for local citizens to raise revenue.

III.2 Characteristics of Ecotourism

According to studies of (Polash and Habeb, 2020; Siswanto and Moeljadi, 2015; Olearnik and Barwicka, 2018; Tanzania Development Gateway, 2004; Higham, 2007; Leksakundilok, 2004; Anishchenko, 2016; Barna, 2009), it can be said that the ecotourism has certain characteristics, processes, and expects the results that can be classified as below :

- These destinations are mostly remote areas, whether occupied or uninhabited, requiring travel to natural areas and/or archeological sites, and are typically protected by some sort of environmental protection at national, international, communal or private levels;
- Ecotourism must benefit from this opportunity. While there are always spin-offs with societal, economic, political or science advantages, the world must experience a net profit from the activity;
- Creating economic gains for the environmental needs of host populations, organizations and authorities maintaining protected areas;
- Avoids harmful effects that can harm or ruin the integrity or character of the visited natural or cultural environments;
- Increasingly dependent on technology that has been sensitively built in accordance with the ecosystem - minimizing the use of fossil fuels that support local plants and animals and integrating them with the natural environment;
- It should encourage moral and ethical responsibilities and conduct of all actors towards the natural and cultural environment;

– Increasing awareness, both among locals and tourists, of the conservation of natural and cultural assets.

IV. The relationship between Ecotourism and Sustainable Development

There are three important and unique aspects of the relationship between ecotourism and sustainable development (Getahun, 2018):

- Interaction: The essence of ecotourism, as a service sector focused on the delivery of new location experiences, ensures that a large amount of direct and indirect contact between tourists, host communities and their local environments is involved.
- Awareness: Ecotourism makes us much more mindful of environmental problems and gaps between nations and cultures (visitors and hosts). This does not only impact views and concerns about environmental issues while traveling, but in the lives of people.
- Dependency: Visitors looking to explore intact and safe landscapes, beautiful natural areas, genuine historical and cultural values, and friendly hosts with whom they have a pleasant relationship are the foundation of most ecotourism. The demand depends on these characteristics being in place.

By creating a sustainable productive base that encourages people and service providers to experience growing living conditions, ecotourism encourages sustainable growth by striving to ensure ecologically, economically and culturally healthy tourism. sustainable tourism can be achieved when activities are controlled by the local community in which tourism activities are being generated. In brief, sound environmental conservation and ecotourism are closely related to sustainable development (Eshetu, 2014).

In particular, tourism has been described as a viable choice for achieving sustainable development from a global perspective, while ecotourism provides developing countries with increasing opportunities to boost resource management and gross domestic product, thus achieving economic growth through local networking of companies that arise from ecotourism functions (Tiimub, et al. 2020).

V. Standard Study

We will try to examine and measure the impact and relationship of ecotourism in achieving sustainable development for ten countries.

V.1 Study sample and its data source

The study consists of the Organization of Islamic Coorporation countries; whereas the study sample was selected of the following ten countries; Algeria, Egypt, Tunisia, Morocco, Jordan, Lebanon, Indonesia, Malaysia, Maldives and Turkey. What characterizes this sample is that it is a collection of Arabic and

Islamic countries which depends on its great asset in promoting the ecotourism which became one of the main sources of its incomes. For instance, tourism represents 55% of the Maldives' domestic raw product because it provided all the required data and information during the period of study from 1995 to 2018 depending on yearly data gathered from the BASEIND which made the study data Fixed Panel. And to estimate the Regression Models in this type of data, one of the three known forms is taken: the Pooled Regression Model, the Fixed Effects Model, and the Random Effects Model. Therefore, it is necessary to formulate a Regression Model in each case, then estimate the models, and then choose the most appropriate for this study.

- **The Pooled Regression Model (PM):** Assumes that the group of countries have one model, i.e. coefficients are fixed for all the countries and for all the years.
- **The Fixed Effects Model (FEM):** Assumes that not all the countries have the same model, i.e the coefficients are not fixed for all the countries but are fixed for every country during the period of the study.
- **The Random Effects Model (REM):** Assumes that not all the countries have the same model, i.e. the coefficients are not fixed for all the countries but are fixed for every country during the years of study added to it the margin of error symbolized with '*it*'.

V.2 Study Variables

Briefing all the aspects of the problem involved with the study, and that is centered on measuring the impact of ecotourism in achieving sustainable development, highligting a random sample of countries from the period between 1995-2018 through the following study variables:

- **Independent variable (sustainable develpment):** Represented in (GDP) that represents the gross domestic product estimated to a thousand million in local currencies.
- **Dependent variables (ecotourism):** Represented in:
  - Tourists number (V) estimated to thousands of tourists.
  - Tourism revenues (ET) estimated to million dollars.

The measuring model was characterized according to what the previous studies have brought which dealt with the research topic totally or partially as follows:

$$GDP_{it} = \hat{\beta}_0 + \hat{\beta}_1 V_{it} + \hat{\beta}_2 ET_{it} + \varepsilon_{it}$$
$$i = (1-10)(t = 1995-2018)$$

The random mistake (ε_{it}), the parameter ($\hat{\beta}_0$), represents the fixed ($\hat{\beta}_1$) ($\hat{\beta}_2$) are the estimated parameters fort he variables (V), (ET) in a row, whereas (i) represents the countries and (t) represents the years.

Table (01): Descriptive presentation of data per country

Country		Variable		
		GDP	V	ET
Algeria	Average	62012.52	730.99	140.21
	Standard deviation	119902.12	1576.67	226.08
Egypt	Average	85801.50	3353.40	3378.14
	Standard deviation	160024.36	8029.29	7142.17
Jordan	Average	13025.03	1549.18	1890.65
	Standard deviation	20331.09	5013.88	2969.96
Malaysia	Average	100959.93	5685.68	7272.03
	Standard deviation	196053.79	22268.38	13695.38
Maldives	Average	1461.18	365.98	1012.69
	Standard deviation	2146.36	744.04	1331.08
Morocco	Average	28982.95	3120.33	3004.88
	Standard deviation	73992.79	7238.00	5861.00
Tunisia	Average	10254.64	1379.73	663.03
	Standard deviation	34144.01	6295.04	2460.38
Indonesia	Average	329693.35	3142.08	3411.54
	Standard deviation	524943.04	7065.08	7721.54
Lebanon	Average	14875.36	496.22	2893.32
	Standard deviation	30419.90	1200.29	5036.79
Turkey	Average	276191.24	13085.56	11532.04
	Standard deviation	564730.19	24427.13	20734.92

Table (02): Descriptive presentation of total data

	GDP	V	ET
Mean	172668.8	8385.779	6717.929
Median	74018.89	5324.500	4598.500
Maximum	1042173.	46113.00	38855.00
Minimum	566.3400	315.0000	28.00000
Std. Dev.	241711.2	9266.049	7598.620
Skewness	2.096998	1.870296	2.046197
Kurtosis	6.571935	6.143174	7.309287
Jarque-Bera	303.4832	238.7157	353.1764
Probability	0.000000	0.000000	0.000000
Sum	41440503	2012587.	1612303.
Sum Sq. Dev.	1.40E+13	2.05E+10	1.38E+10
Observations	240	240	240

Source: Prepared by the researchers based on Eviews10 outputs

From the results of the two tables above, we can conclude we the following observations:

- The measuring average of GDP is amounted to 172668.8 million US dollars, while the number of visitors average is 8385.779 visitors. For the tourism revenues, it has achieved an averagee amounted to 6717.929 tousand dollars. A huge difference is observed between the variables

average because of the countries economic size differences, and its dependence on tourism as a fundamental or secondary source in measuring its gross domestic product. Also the small decrease that the study variables average has known reflects a simple turn to the right in the values table, i.e. the values are heading to the small rates;

- The big values in the table recorded 1042173 million US dollars of GDP and 46113 thousand visitors, and 38855 million US dollars as tourism revenues, i.e. there are high radical values in the three variables series because of the differences in the prices in Indonesia, Turkey and Malaysia in a row;
- For the low values, the lowest of GDP is 566.34 million dollars that the Maldives achieved in 1995, while the lowest of V is 315000 visitors in the same country, and the same year. Also, there are closer values in the same country as well as in Lebanon. As for ET,we find the lowest value is 28 million dollars that Algeria knew in 1997;
- From the standard deviation values we find that the differences average between the three variables is low, i.e. the differences average in the variables GDP, V and ET for every country is 2241711.2 million dollars, 9266.049 tousand tourists and 7598.620 million dollars on a row because of the difference in the countries sample data.

V.3 Correlational Study

To determine the correlation relationships nature and directions between the dependent variable and the independent variable in its raw figures, we use the following matrix:

Table (03): Correlation Matrix between the Variables

Variables	**GDP**	**V**	ET
GDP	1.000000		
V	0.657136	1.000000	
ET	0.745501	0.926006	1.000000

Sources: Prepared by the researchers based on Eviews10 outputs.

From the table we see that the size and nature of the relationship which shows that there is a positive correlational relationship between the gross domestic product and both of the number of tourists and the tourism revenues, the correlation average is 0.657136 , 0.745501 ordered. And it is considered as a strong positive relationship because it is less than 0.5.

V.4 The results of the three Panel data models estimation

In the table below, we have displayed the results of the panel data model estimation for three models : the pooled regression model (PRM), the fixed

effects model (FEM) and the random effects model (REM). After that we will use the restricting tests to choose the appropriate model for the study.

Table (04): The parameters estimation results for Panel regression models

Explanatory Variables		**Estimation method**		
		Pooled Regression	**Fixed Effects Method**	**Random Effects Method**
V	Coefficient	-6.077396	9.179924	8.190706
	Std. Error	2.965451	3.460063	3.358925
	t-Statistic	-2.965451	2.653109	2.438490
	Prob	0.0415	0.0085	0.0155
ET	Coefficient	30.57693	13.36568	14.30608
	Std. Error	3.616184	3.521214	3.452552
	t-Statistic	8.455578	3.795761	4.143624
	Prob	0.0000	0.0002	0.0000
C	Coefficient	18218.83	5898.232	7876.093
	Std. Error	14031.6	12985.09	47373.91
	t-Statistic	1.298414	0.454231	0.166254
	Prob	0.1954	0.6501	0.8681
R-squared		0.563507	0.847381	0.552068
Adjusted R-squared		0.559823	0.840017	0.548288
F-statistic		152.9817	115.0829	146.0488
Prob(F-statistic)		0.000000	0.00000	0.00000
DW		0.072830	0.188752	0.178600

Source: Prepared by the researchers based on Eviews10 outputs.

We notice from the table above that all the models are statistically accepted through the companion probability to Fisher's statistic, which indicates that all the models have a statistical significance at the level of 1%. The restricting coefficient also indicates that the explanatory capacity is average for both the associative model and the random effects model at around 55~56%. On the other hand, the fixed effects model's restricting coefficient indicates an explanatory capacity of 84%. However, this increase is due to the dummy variable growth in the model.

From the results cleared in the table, we can say that the fixed limit in all the models has no significance, and it is what the companion probability to the Student statistic that accepts the null hypothesis at the level of 1% shows. And this is what indicates that there is no mutual fixed limit between the involved countries. Also, the companion probabilities to Student's statistic shows that the tourists number variable coefficient in the three models statistical significance at the level of 5%. However, the associative model probability indicates that this

variable on the gross domestic product give a negative effect in contrast to the probability of the fixed and the random effects that gives a positive effect. For the tourism revenues, the companion probabilities to Student's statistic shows a statistical significance of that model in all of the three models at the level if 1%. Also, it shows that the tourism revenues has a positive effect on the gross domestic product.

V.5 Restricting Tests

After estimating the three involved models of panel's data, we have to select the most appropriate model for these data; and there have been three tests developed which might be effective in the selection which should be as follows:

V.5.1 The F-Test: We use the F-test to trade-off between the associative model and the fixed effects model as:

- The null hypothesis: The associative model is most appropriate.
- The alternative hypothesis: The fixed effects model is the most appropriate.

And the results were as follows:

Table (05): Results of F-Test

Test's Type	Test's Value	Test
F-test	47.1202	0.0000

Source: Prepared by the researchers based on Eviews10 outputs.

From the test's results we can reject the null hypothesis at the significance level of 1%, i.e. we reject the associative model and accept the fixed effects model as the most appropriate model for the study data.

V.5.2 Breusch-Pagan Test: After making the Fisher's restrictive test, we will use the Breusch-Pagan test to trade-off between the associative effects model and the random effects model as:

- The null hypothesis: The associative model is most appropriate.
- The alternative hypothesis: The fixed effects model is the most appropriate.

And the results were as follows:

Table (06): Results of Breusch-Pagan Test

Test's Type	Test's Value	P.Value
Breusch-Pagan	982.8904	0.0000

Source: Prepared by the researchers based on Eviews10 outputs.

However, we can reject the Breusch-Pagan hypothesis. The null hypothesis test is indicated at the significance level of 1%, i.e. we reject the associative model and accept the hypothesis that the random effects model is the most appropriate model for the study data.

V.5.3 Hausman Test: After making the previous two tests, which reject the associative model, we should make the Hausman test to trade-off between the fixed effects model and the random effects model. Because the null hypothesis states that the random effects are the most efficient.

– The null hypothesis: The associative model is most appropriate.

– The alternative hypothesis: The fixed effects model is the most appropriate.

Table (7): Hausman Test

Test's Type	Test's Value	P.Value
Hausman	2.031440	0.3621

Source: Prepared by the researchers based on Eviews10 outputs.

From remarking the associative probability to the Hausman statistic, we can reject the alternative hypothesis and accept the null hypothesis at the significance level of 1%, i.e. we reject the fixed effects model and accept the hypothesis that the random effects model is the most appropriate model for the study data.

In short, and after making the restricting tests which reject the associative model and prefer the random effects model to the fixed effects model, we conclude that the appropriate model is the random effects model. Which means that the involved sample is chosen randomly, i.e. the cross-sectional effects are random features; that each country differs in its random restriction.

V.6 Discussion the Results

According to the restricting tests results, and on the basis of the random effects model evaluation results, we find that the whole model is statistically accepted at the level of 1%. And that is what the companion probability to Fisher's statistic shows, this model provides a determination coefficient that is 0.55, i.e. the irregular tourists number and the irregular tourism revenues explain the 55% of the changes that happened in the irregular gross domestic product, and the remainder come to the margin of error and that this explanatory capacity is considered average.

Student's statistic and its companion probability to the tourists number variable shows that the relation between this variable and the dependent variable is a direct correlation statistically significance at the level of 5%. That if the tourists number has increased to a thousand tourists, this is going to increase the gross domestic product to 8.1 million U.S. dollars with a stability of the other factors. On the other hand, for Student's statistic and its companion probability of the irregular tourism revenues it is a direct correlation statistically significance at the level of 1% between this variable and the dependent variable which means that if the tourism revenues has increased to a million U.S. dollars, the gross domestic product will increase to 14.3 million U.S. dollars. And finally we notice that the fixed limit in the model has no statistical significance since the

companion probability to Student's statistic value is more than 0.05, which indicates that there is no statistical significance of the fixed limit feature.

VI. Conclusion and Recommendations:

The study of the ecotourism's effect on the sustainable development depending on the panel's data for a group of ten Islamic countries helped in achieving results that correspond with the economic hypothesis and most of the previous studies. We provide the most important collected results in:

- There is a direct relationship between the tourism revenues and the gross domestic product, as the tourism revenues increase, the gross domestic product increases as well. That is because tourism is considered as one of the most important sources of revenues for these countries as it is one of the engine sectors to the economic development;
- There is also a direct relationship between the number of tourists and the gross domestic product, i.e. whenever the number of tourists increases, the gross domestic product increases as well;
- The disproportionate of the pooled regression model to the studied countries since each country has its own ecotourism and sustainable development indicators, i.e. each country has its own model of ecotourism indicators impact on its sustainable development;
- The disproportionate of the fixed effects model to the studied countries since they are heterogeneous in the ecotourism and the sustainable development indicators which would not be fixed over the years of study;
- The proportional of the random effects model to the studied countries that is acceptable since the countries are heterogeneous. That is because each country has its own indicators that achieved an expulsion growth rates because of the changes in the economic, political and social environment in each country.

In order for countries to achieve the sustainable development through ecotourism, they have to make the following procedures:

- Preparing tourism programs that depends on guiding tourism to environmentally distinctive areas with making sure of practicing touristic behaviors without touching the environmental quality or affecting it;
- The importance of preserving the endurance energy of the natural, environmental, archaeological and historical areas, so that these areas could sustain a particular number of tourists without making any unpleasant changes that on the natural, social and cultural environment or negatively affecting the visitors enjoyment in the area;
- Adopting the basic ecotourism principles such as protecting the source and supporting the local societies, so that they could be included in laws,

standards and administrative plans. Adopting such mechanisms helps in preserving the vibrant variation and achieving sustainable development;

- Working on marketing the tourism that is built on the folklore to attract as many tourists as possible depending in the first place upon the archaeological, historical, religious and cultural heritage;
- Taking care of building hotels and residential communities in beaches and the natural isolated areas with what follows it from facilities and services to provide comfort and attract tourists;
- Encouraging the tourism investments and building entertaining units, and also taking care of the archaeological areas and forests;
- Making programs, laws and standards which organizes the tourism activities in addition to keep implementating and applicating them;
- Spread the environmental awareness programs on every status and preparing its leaflets and instuctional publications;
- Developing policies and programs of protecting the environment and contributing in cutting pollution and wastes, and guiding the use of natural resources and the energy in tourism facilities;
- Organizing special sessions to qualify the touristic guiders, hotels employers and tourism units for ecotourism. Aslo sessions for the local societies in the target touristic areas about developing the local and traditional products;
- Ecotourism is based on the nature in which the basic motive for tourists is observing and assessing the nature, and also the traditional cultures common in the natural areas. So that natural areas should be protected to increase the ecotourism;

The main goal of ecotourism jobs should be achieving high levels of satisfaction between its customers through providing high quality services, and contributing in preserving natural and cultural resources.

IV. References:

1) Agbedahin, A. V. (2019). Sustainable development, Education for Sustainable Development, and the 2030 Agenda for Sustainable Development: Emergence, efficacy, eminence, and future. *Sustainable Development*, pp. 1-12.
2) Anishchenko, M. (2016). Ecotourists' motivation and its relation to the ecotourism's principles (Magister Thesis). Umeå, Department of Social and Economic Geography, Sweden: Umeå University.
3) Barna, C. (2009). Eco-Tourism For Sustainable Development. *Annals of Spiru Haret University, Economic Series, 1*(1), pp. 99-108.
4) Beder, S. (2000, January). The Role of Technology in Sustainable Development. University of Wollongong. Récupéré sur https://ro.uow.edu.au/artspapers/48

5) Dorji, J., Gurung, D., & Katel, O. (2020). Ecotourism Destination Assessment using Tourist Potential Index in Zhemgang Dzongkhag, Bhutan. *Bhutan Journal of Natural Resources & Development, 7*(2), pp. 1-11. doi:https://doi.org/10.17102/cnr.2020.47
6) Eshetu, A. A. (2014, May). Development of community based ecotourism in Borena-Saynt National Park, North central Ethiopia: Opportunities and Challenges. *Journal of Hospitality and Management Tourism, 5*(1), pp. 1-12.
7) Ferri, G., & Acosta, B. A. (2019). Sustainable Finance for Sustainable Development. *CERBE Working Papers wpC30.* Rome: CERBE Center for Relationship Banking and Economics.
8) Getahun, S. M. (2018). Review on Role of Biodiversity Conservation for Ecotourism and Sustainable development. *International Journal of Scientific Research in Civil Engineering, 2*(3), pp. 22-29.
9) Grano, C., & Prieto, V. (2020). Sustainable Development Goals in Higher Education. *International Joint Conference on Industrial Engineering and Operations Management-ABEPRO-ADINGOR-IISE-AIM-ASEM (IJCIEOM 2020).*
10) Haliscelik, E., & Soytas, M. A. (2019, January). Sustainable Development From Millennium 2015 to Sustainable Development Goals 2030. *Sustainable Development*.
11) Higham, J. (2007). Ecotourism: competing and conflicting schools of thought. Dans J. Higham, *Critical Issues in Ecotourism: Understanding a complex tourism phenomenon* (éd. 1e). Elsevier.
12) Jensen, C. R., & Langergaard, L. L. (2020). The returning butterflies: Social entrepreneurs and sustainability in ecotourism. *Forskning and Forandring*, 3(2), pp. 2-26. doi:https://doi.org/10.23865/fof.v3.2404
13) Klein, M., & Spychalska-Wojtkiewicz, M. (2020). Experience Economy in the Context of Sustainable Development. *International Journal of Management, Knowledge and Learning, 9*(1), pp. 109-120.
14) Kurbatova, S., Aisner, L., & Mazurov, V. (2020). Green logistics as an element of sustainable development. *IOP Conference Series: Earth and Environmental Science.* IOP.
15) Lee, J., & Iwasa, Y. (2020). Ecotourism development and the heterogeneity of tourists. *Theoretical Ecology*, 371-383.
16) Lee, S., & Fayzullina, S. (2019). Ecotourism and community development: A case study of Yangiabad in Uzbekistan. *International Conference on Hospitality, Tourism, and Sports Management (HTSM).* Osaka.
17) Leksakundilok, A. (2004). *Community Participation in Ecotourism Development in Thailand.* University of Sydney. Geosciences.
18) Lut, D. M. (2020). Environmental Aspects of Sustainable Development. *Tourism and Sustainable Development.* Timisoara.
19) Mahcine, H., & Cherchem, M. (2020). Sustainable Development And Innovation In Financial Services. *Journal of Innovation & Business Best Practice*.
20) Mckinney, T. (2016). Ecotourism. Dans A. Fuentes, *The International Encyclopedia of Primatology*. JohnWiley & Sons.
21) Olearnik, J., & Barwicka, K. (2018). Ecotourism as a Factor Influencing Behaviour of Tourism Market Participants. *Economic Problems of Tourism, 4*(44), pp. 17-24.
22) Polash, A. K., & Habeb, A. (2020). Ecotourism: A new door to possibilities for Bangladesh. *International Journal of Advances in Engineering and Management (IJAEM), 2*(8), pp. 121-132.

23) PRO EUROPE. (2005). *Environmental Education –the path to Sustainable Development.* Belgium: PRO EUROPE. Récupéré sur PRO Europe.
24) Sabrina, R. (2020, November). Environmental and Sustainable Development in Islamic Perspective. *Budapest International Research and Critics Institute-Journal, 3*(4), pp. 2975-2985.
25) Schandl, H. (2016, October 25). Contribution of the 3Rs to achieving the Sustainable Development Goals – Science and Policy for the 2030 Sustainable Development Agenda. *Background paper for the seventh regional 3R Forum for Asia and the Pacific*. Adelaide, Australia: CSIRO.
26) Sharma, M. (2015). A Value approach to Sustainable Development. Dans *Environmental Protection and Sustainable Development* (pp. 181-196). New Delhi, India: Anamika Publishers.
27) Siswanto, A., & Moeljadi. (2015, December). Eco-Tourism Development Strategy BaluranNational Park in the Regency of Situbondo, East Java, Indonesia. *International Journal of Evaluation and Research in Education (IJERE), 4*(4), pp. 185-195.
28) Song, J. M., Choi, J.-H., & Talluri, S. (2020, October 6). Joint Sustainability Development in a Supply Chain. *Decision Sciences*.
29) Tanzania Development Gateway. (2004). *Ecotourism and Other Forms of Tourism.* Récupéré sur Tanzania Development Gateway: http://www.tanzaniagateway.org/docs/ecotourism_and_other_forms_of_tourism.pdf
30) Tiimub, B., Kuffour, R., Tiimob, R., Kuuyeni, C., Tiimbo, E., & Tiimbo, E. (2020). Sacred groves as potential ecotourism sites at Tolon and Diare in Northern Region, Ghana. *Journal of Sustainable Tourism and Entrepreneurship*, pp. 195-215.
31) UNEP. (2013). *Green Economy and Trade – Trends, Challenges and Opportunities.* United Nations Environment Programme. Récupéré sur http://www.unep.org/greeneconomy/GreenEconomyandTrade
32) Verma, A. K. (2019, January-June). Sustainable Development and Environmental Ethics. *International Journal on Environmental Sciences*, *10*(1), pp. 1-5.
33) Vikhoreva, M., Malanina, Y., & Ogloblin, V. (2020). Sustainable Development of the Territory. Concept Foundation. *International Conference on Economic and Social Trends for Sustainability of Modern Society.* The European Proceedings.
34) Voulellis, P., & Serraos, K. (2017). The role of Carrying Capacity as a quantitative method for Urban Sustainable Development. *Conference on Changing Cities III.* Syros.

IIV. Appendices:

Pooled Regression

Dependent Variable: GDP
Method: Panel Least Squares
Date: 09/18/20 Time: 15:14
Sample: 1995 2018
Periods included: 24
Cross-sections included: 10
Total panel (balanced) observations: 240

Variable	Coefficient	Std. Error	t-Statistic	Prob.
V	-6.077396	2.965451	-2.049400	0.0415
ET	30.57693	3.616184	8.455578	0.0000
C	18218.83	14031.60	1.298414	0.1954

R-squared	0.563507	Mean dependent var	172668.8
Adjusted R-squared	0.559823	S.D. dependent var	241711.2
S.E. of regression	160365.3	Akaike info criterion	26.82072
Sum squared resid	6.09E+12	Schwarz criterion	26.86423
Log likelihood	-3215.486	Hannan-Quinn criter.	26.83825
F-statistic	152.9817	Durbin-Watson stat	0.072830
Prob(F-statistic)	0.000000		

Fixed Effects Method

Dependent Variable: GDP
Method: Panel Least Squares
Date: 09/18/20 Time: 15:15
Sample: 1995 2018
Periods included: 24
Cross-sections included: 10
Total panel (balanced) observations: 240

Variable	Coefficient	Std. Error	t-Statistic	Prob.
V	9.179924	3.460063	2.653109	0.0085
ET	13.36568	3.521214	3.795761	0.0002
C	5898.232	12985.09	0.454231	0.6501

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.847381	Mean dependent var	172668.8
Adjusted R-squared	0.840017	S.D. dependent var	241711.2
S.E. of regression	96679.27	Akaike info criterion	25.84489
Sum squared resid	2.13E+12	Schwarz criterion	26.01892
Log likelihood	-3089.387	Hannan-Quinn criter.	25.91501
F-statistic	115.0829	Durbin-Watson stat	0.188752
Prob(F-statistic)	0.000000		

Random Effects Method

Dependent Variable: GDP
Method: Panel EGLS (Cross-section random effects)
Date: 09/18/20 Time: 15:17
Sample: 1995 2018
Periods included: 24
Cross-sections included: 10
Total panel (balanced) observations: 240
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
V	8.190706	3.358925	2.438490	0.0155
ET	14.30608	3.452552	4.143624	0.0000
C	7876.093	47373.91	0.166254	0.8681

Effects Specification

	S.D.	Rho
Cross-section random	144342.4	0.6903
Idiosyncratic random	96679.27	0.3097

Weighted Statistics

R-squared	0.552068	Mean dependent var	23389.78
Adjusted R-squared	0.548288	S.D. dependent var	143857.0
S.E. of regression	96685.68	Sum squared resid	2.22E+12
F-statistic	146.0488	Durbin-Watson stat	0.178600
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.520845	Mean dependent var	172668.8
Sum squared resid	6.69E+12	Durbin-Watson stat	0.059141

F-test

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	47.120280	(9,228)	0.0000
Cross-section Chi-square	252.198118	9	0.0000

LM test

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	982.8904 (0.0000)	9.240841 (0.0024)	992.1313 (0.0000)

Hausman test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	2.031440	2	0.3621